Patent Application No. 10/613,504

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Lewis *et al.*

Date: September 19, 2005

Serial No.: 10/613,504

Docket No.: 033948-0128

Filed: July 3, 2003

Examiner: J. Johnson

For: **CURED LUBRICANT FOR CONTAINER CONVEYORS**

DECLARATION OF PAUL F. LEWIS

I, Paul F. Lewis, do hereby declare and state as follows:

I have been involved in the field of polymer chemistry for more than 23 years. I have been employed at JohnsonDiversey, Inc. for the last 11 years and I presently hold the position of Senior Group Leader. My responsibilities at JohnsonDiversey, Inc. include new product development of floor care products, including coatings. Prior to this I spent 5 years as a Group Leader at Rust-Oleum Corporation, where I was responsible for new product development of coatings.

I received a Bachelors of Science in Chemistry, with Special Honors from Nottingham University, Nottingham, England in 1981.

I am one of the co-inventors on U.S. Patent Application Serial No. 10/613,504.

I supervised experiments demonstrating that a solid lubricant coating containing a mixture of a hydrophobic polymer and an alkali soluble resin applied to a conveyor belt provides lubricating properties that are greater than expected based on direct comparisons with solid lubricating coatings that include either the hydrophobic polymer or the alkali soluble resin.

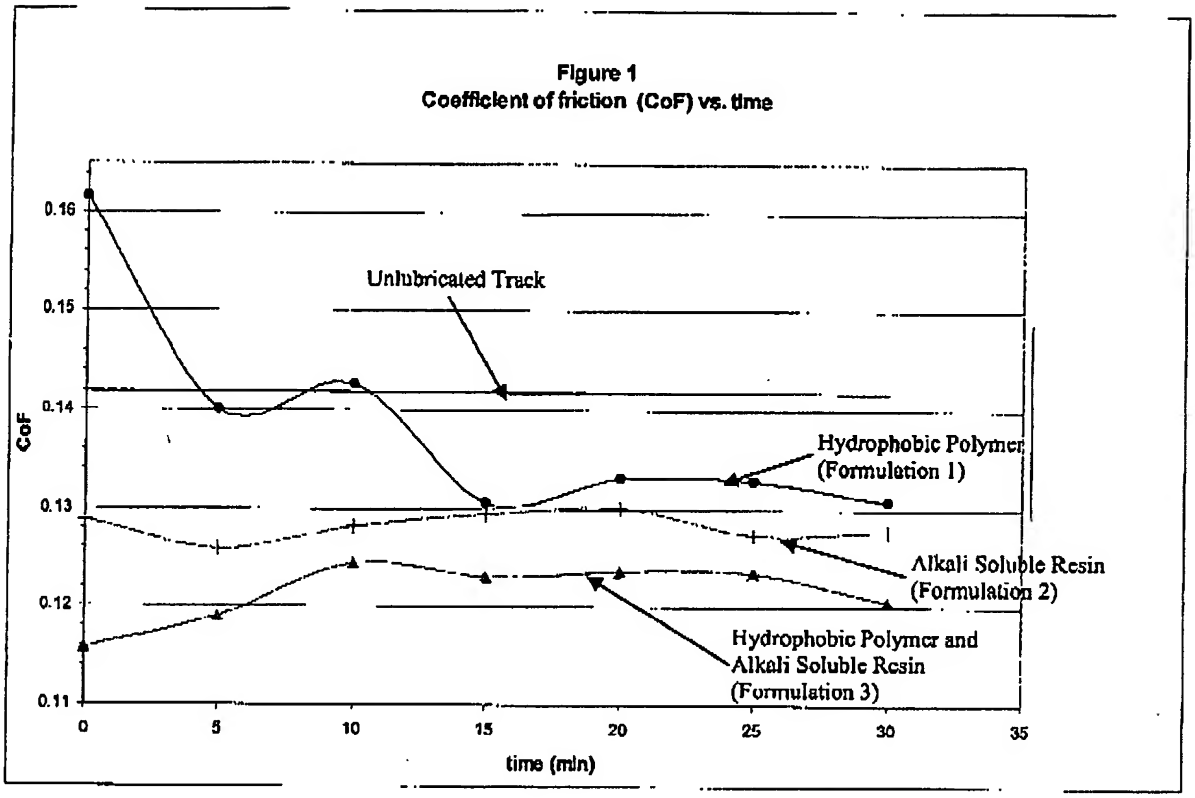
Three liquid lubricant formulations were prepared for the experiments. These formulations are provided in Table 1, below. As shown in the table, the only difference between the three formulations is the nature of the polymer component. In Formulation 1, the polymer component was a high molecular weight polymer (C-41). C-41 is a polymer emulsion, the composition of which is provided in Table 1 of the above-referenced patent application. In Formulation 2, the polymer component was an alkali soluble resin (B-98). The composition of B-98 is provided in Table 2 of the above-referenced patent application. In Formulation 3, the polymer component was a mixture of C-41 and B-98. The weight percent of polymer component on a solids basis in each of the three formulations was the same.

Ingredient	Wt. % Solids in Ingredient	Formulation 1 (grams)	Formulation 2 (grams)	Formulation 3 (grams)
Water	0	615.26	583.22	597.06
Diethylene glycol ethyl ether solvent	0	27.19	27.19	27.19
Zonyl FSE fluorochemical solution	0.14	1.09	1.09	1.09
AC-392 Wax Emulsion	25	218.50	218.50	218.50
Ammonium Hydroxide	0	2.72	2.72	2.72
Low Molecular weight polymer solution (B-98 resin)	27.9	-	157.94	89.70
High Molecular weight polymer emulsion (C-41)	35	125.90	-	54.40
Zinc ammonium carbonate solution	15	9.20	9.20	9.20
SWS 211 Defoamer	10	0.14	0.14	0.14
Total		1,000.00	1,000.00	1,000.00

Table 1

Each of the three liquid lubricant formulations was applied to a short track conveyor belt and dried to form a solid lubricant coating using the laboratory table top conveyor system and procedures described in paragraphs 29 and 30 of the above-referenced patent application. The coefficient of friction provided by each of the solid lubricant coatings was then measured according to the short track conveyor test (dry run) described in detail in paragraphs 29-31 of the above-referenced patent application. The short track conveyor test conditions were the same for all tests.

The results of the coefficient of friction measurements are shown below in Figure 1. For comparison, coefficient of friction measurements taken on the unlubricated conveyor track are also shown. As shown in Figure 1, the solid lubricant coating that included only the hydrophobic polymer did not provide a coefficient of friction lower than 0.13 over the course of the short track conveyor test and was as high as 0.162. The solid lubricant coating that included only the alkali soluble resin provided a coefficient of friction between 0.126 and 0.13 over the course of the short track conveyor test. In contrast, the solid lubricant coating that included both the hydrophobic polymer and the alkali soluble resin provided a coefficient of friction up to only 0.124 and as low as 0.118 over the course of the short track conveyor test. The significantly lower coefficient of friction values provided by the mixture of the hydrophobic polymer and the alkali soluble resin represent a substantial improvement in lubricating properties. Additionally, the limitation of lubricants is the highest coefficient of friction that is achieved during a run, where formulation 3 is also advantageous. This synergistic result would not have been expected based on the lubricating properties observed for the hydrophobic polymer-based lubricant coating and the alkali soluble resin-based lubricant coating.



I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 9/19/2005

Signature: P. Lewis

Paul F. Lewis